FLM-1

12-Channel Fiber Optic / Copper Local Multiplexer

FEATURES

- Time division multiplexer with integral modem
- Up to 12 asynchronous channels
- Channel data rates up to 38.4 kbps
- Two optional transmission media: 4-wire or dual fiber optic cable
- Local and remote loopback
- Transmission range:
  Up to 40 km (25 miles) for optical interface;
  Up to 1.6 km (1 mile) for copper interface
- Transparent to character structure
- Easy to install
- Immune to EMI/RFI, ground loops and lightning

DESCRIPTION

- FLM-1 is a time division multiplexer enabling up to twelve asynchronous terminals to be multiplexed onto a single cable for point-to-point applications. Up to four FLM-1 units can also be installed in a ring application involving clusters of terminals at various locations. A built-in modem in the FLM-1 drives the high speed multiplexed data over fiber-optic or twisted-pair cable.
- FLM-1 can be user-selected to operate with twelve channels, or with six channels for improved performance.
- When set to six channels, each channel can be used to transmit full duplex data end-to-end. When set to twelve channels, each channel can be used for either data or control signal transmission. This allows six channels, for example, to be used for transmitting full duplex data, and six other to be used for transmitting control signals end-to-end. Alternatively, all twelve channels can be used to transmit full duplex data end-to-end.
- Two channel interfaces options are available (see *Ordering*):
  - six 25-pin D-type, female connectors, which can be expanded to support twelve channels by using channel doubler cables, or
  - twelve RJ-45 connectors, each supporting a single channel.
- FLM-1 offers two cable options for the main link interface:
  - 4-wire for transmitting over two twisted copper pairs, or
  - dual fiber for transmitting over duplex fiber-optic cable.
- The main link copper interface is available with either a 5-screw terminal block, or an RJ-45 connector. The optical interface is available with a variety of connectors and wavelengths (see *Ordering*).
- FLM-1 is available as a standalone desktop unit. Special hardware for mounting in a 19" rack is available (see *Ordering*).

SPECIFICATIONS

COPPER MAIN LINK

- **Transmission Line**
  4-wire unconditioned telephone lines (two twisted pairs)
- **Operating Range**
  The maximum range is 1.6 km (1 mile) on a 22 AWG
- **Data Rate**
  1.2288 Mbps
- **Connector**
  Terminal Block or RJ-45 (see *Ordering*)

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OPTICAL MAIN LINK

- **Transmission Line**
  Dual optical cable
- **Date Rate**
  2.4576 Mbps
- **Operating Wavelength**
  850 nm or 1300 nm
- **Optical Output Level**
  - for 850 nm:
    -24 dBm into 50/125 fiber
    -20 dBm into 62.5/125 fiber
  - for 1300 nm:
    -18 dBm into 9/125 fiber
- **Receiver Sensitivity**
  -40 dBm
- **Dynamic Range**
  24 dB
- **Operating Range**
  - for 850 nm:
    up to 5 km (3.1 miles)
  - for 1300 nm:
    up to 40 km (25 miles) with attenuation of 0.5 dB/km with 9/125 fiber-optic cable
- **Connectors:**
  SMA or ST (see *Ordering*)

SUBCHANNELS

- **Transmission Format**
  Asynchronous
- **Number of Subchannels**
  Up to twelve
- **Data Rate**
  Up to 38.4 kbps with fiber-optic main link
  Up to 19.2 kbps with 4-wire main link
- **Distortion**
  see *Table 1*
- **Interface**
  RS-232/V.24
- **Connectors**
  Six 25-pin D-type, female, or Twelve RJ-45 connectors (see *Ordering*)

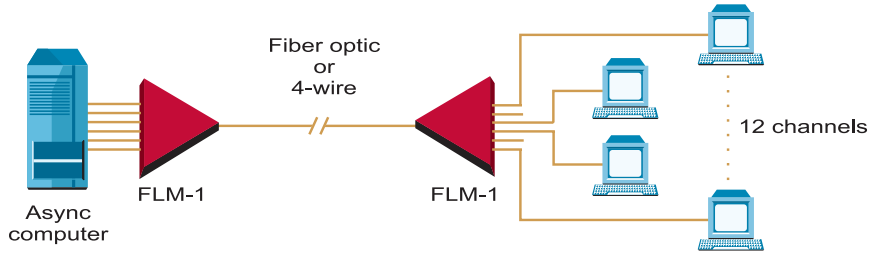
GENERAL

- **Diagnostics**
  Local digital loopback
  Remote digital loopback
- **Indicators**
  Power (green):
  ON when unit is powered
  Local Sync Loss (red):
  ON when local sync is lost
  Remote Sync Loss (red):
  ON when remote sync is lost
- **Physical**
  Height: 4.4 cm / 1.7 in (1U)
  Width: 33.8 cm / 13.3 in
  Depth: 20.8 cm / 8.1 in
  Weight: 1.6 kg / 3.5 lb
- **Environment**
  Temperature: 0-50°C / 32-122°F
  Humidity: Up to 90%, non-condensing

Table 1. Date Rates and Distortion

No of Sub-channels	Max Data Rate (kbps)	Distortion (%)	
		Copper	Optical
6	19.2	12.5	6.25
6	38.4	–	12.5
12	19.2	25.0	12.5
12	38.4	–	25.0

APPLICATION



ORDERING

FLM-1/^/&/~
12-Channel Local Multiplexer

^ Specify main link interface and connector:
4W-TB for 4-wire copper interface with terminal block connector
4W-RJ for 4-wire copper interface with RJ-45 connector
DF-ST85 for dual fiber, 850 nm multimode, with ST connector
DF-SMA85 for dual fiber, 850 nm multimode, with SMA connector
DF-ST13 for dual fiber, 1300 nm single mode, with ST connector

& Specify subchannel connectors:
DB for 6 x D-25 connectors
RJ for 12 x RJ-45 connectors

~ Specify power supply voltage:
100 for 100 VAC power supply
115 for 115 VAC power supply
230 for 230 VAC power supply

CD/*
Channel doubler cable for splitting one DB-25 connector into two DB-25 connectors

* Specify **F** for female connectors (default is male)

FLM-RM
Hardware for mounting a FLM-1 unit in a 19-inch rack.

RAD
data communications
www.rad.com
International Headquarters
24 Raoul Wallenberg Street
Tel Aviv 69719, Israel
Tel: (972) 3-6458181
Fax: (972) 3-6498250, 6474436
Email: rad@rad.co.il
U.S. Headquarters
900 Corporate Drive
Mahwah, NJ 07430
Tel: (201) 529-1100
Toll free: 1-800-444-7234
Fax: (201) 529-5777
Email: market@radusa.com

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